

JP 10-273,423

Best Available Copy

JP 10-273423

Translated from Japanese by the Ralph McElroy Translation Company
910 West Avenue, Austin, Texas 78701 USA

Code: 5000-77216

JAPANESE PATENT OFFICE
PATENT JOURNAL (A)
KOKAI PATENT APPLICATION NO. HEI 10[1998]-273423

Int. Cl.⁶: A 61 K 7/06
Filing No.: Hei 9[1997]-94557
Filing Date: March 27, 1997
Publication Date: October 13, 1998
No. of Claims: 1 (Total of 11 pages; FD)

HAIR COSMETICS

Inventors: Masaaki Uemura
Shiseido Co., Ltd.
First Research Center
1050 Shinha-cho, Minatokita-ku,
Yokohama-shi, Kanagawa-ken

Shinsuke Takeda
Shiseido Co., Ltd.
First Research Center
1050 Shinha-cho, Minatokita-ku,
Yokohama-shi, Kanagawa-ken

Applicant: 000001959
Shiseido Co., Ltd.
7-5-5 Ginza, Chuo-ku, Tokyo

Agent: Mitsuharu Shimura, patent attorney

[There are no amendments to this patent.]

[0002]

Prior art

There are various kinds of hair cosmetics, and hair cosmetic products exist corresponding to scalp and hair state. For instance, hair cosmetic products for improving an existing condition such as hair loss by preventing itching or dandruff in the scalp according to scalp state have been developed. Today we enter an age-advanced society, and scalp problems have increased accompanying increasing social stress, and the demand for hair cosmetics corresponding to scalp problems has rapidly increased. As factors causing baldness, hair loss, hair thinning, scalp itching, and dandruff, the activation of male sex hormones in organs such as the sebaceous gland of hair roots, etc., excessive sebum secretion, production of peroxide lipids, reduction of blood flow to hair follicles, stress, etc. are exemplified. In addition, when sufficient nutrients for the growth of healthy and beautiful hair cannot be replenished to hair follicles, hair thinning or hair leaning is caused. The reduction of blood flow to hair follicles causes undernourishment and deterioration of the excretion function for waste matter.

[0003]

From the aforementioned viewpoint, improvement in the turnover of horny layers and the secretion of excess sebum in the scalp are necessary for improvement of the blood flow function in at least the scalp and also the resolution of problems of scalp and hair. Conventional hair cosmetics contain ingredients which exhibit activities to remove or reduce the factors causing baldness or hair loss. For instance, vitamins such as vitamin B, vitamin E, etc., vasodilators such as Japanese green gentain extract, acetyl choline derivatives, etc., anti-inflammatories such as gromwell root extractors, etc., female sex hormones such as cepharanthine, etc. are added, and hair cosmetics containing the aforementioned ingredients are used for prevention and treatment of baldness, hair loss, and hair thinning.

[0004]

Problem to be solved by the invention

However, if those components are added only in a small amount to hair cosmetics it is difficult to obtain sufficient effect whereas if they are added in a large amount a tendency of accompanying unpleasant stimulation and rubefaction in the applied area and its vicinity is increased, and naturally the addition amount is limited.

[0005]

Thus, the problem to be solved by the present invention is to provide hair cosmetics exhibiting excellent effects and also excellent safety.

[0006]

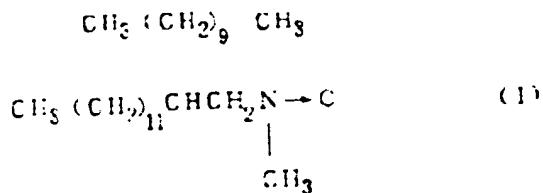
Means to solve the problem

The present inventors assiduously investigated the problem. As a result, it was found that hair cosmetics exhibiting excellent hair loss-preventing effects, hair growth-promoting effects, antidandruff, anti-itching activities and excellent safety can be provided by mixing specific anti-inflammatories with a specific amine oxide, and the present invention was completed.

[0007]

Namely, the present invention provides hair cosmetics containing glycyrrhetic acids and/or glycyrrhizinic acids and dimethylamine oxide represented by the following formula (I).

[Structure 1]



[0008]

Embodiment of the invention

Hereinafter, an explanation on the embodiment of the present invention will be given. The present invention consists of hair cosmetics which exhibit anticipated effects by combining glycyrrhetic acids and/or glycyrrhizinic acids with the aforementioned dimethylamine oxide (I).

[0009]

Next, glycyrrhetic acids and glycyrrhizinic acids to be mixed in hair cosmetics of the present invention will be explained. In the present invention, glycyrrhetic acids means glycyrrhetic acid and glycyrrhetic acid derivatives.

[0010]

Glycyrrhetic acid is an aglycone of glycyrrhizinic acid extracted from licorice root, and it is a triterpenoid compound belonging to the β -Amylene system and known as an anti-inflammatory. Its preparation method is also known and it is available in the market. In addition, as glycyrrhetic acid derivatives, for instance, glycerin glycyrrheinate, stearyl glycyrrheinate, pyridoxine glycyrrheinate, etc. can be exemplified, and their prep method is known, and further all of these are available in the market.

[0011]

In the present invention, glycyrrhizinic acids means glycyrrhizinic acid and glycyrrhizinic acid derivatives. Glycyrrhizinic acid is extracted from licorice root and a glycoside comprising 1 mole of glycyrrhetic acid and 2 moles glucuronic acid, and it is known as an anti-inflammatory. Its preparation is known and it is also available in the market.

[0012]

In addition, as glycyrrhizinic acid derivatives, for instance, trisodium glycyrrhizinate, dipotassium glycyrrhizinate, methyl glycyrrhizinate, monoammonium glycyrrhizinate, etc. are exemplified, and their prep method is known, and moreover all of these are available in the market. The glycyrrhetic acids and glycyrrhizinic acids can be used singly or in combinations of two or more in the present invention hair cosmetics.

[0013]

The mixing quantity of the aforementioned glycyrrhetic acids and/or glycyrrhizinic acids in the hair cosmetics of the present invention is 0.001-5.0 wt% and preferably 0.01-2.0 wt%, based on the entire hair cosmetic.

[0014]

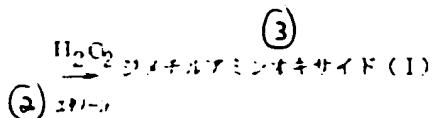
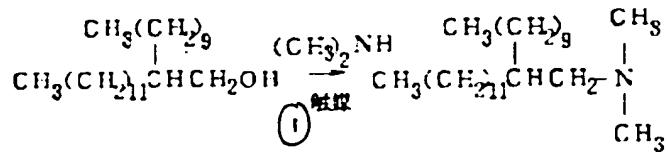
If the mixing quantity is less than 0.001 wt% sufficient anti-inflammatory effect cannot be exhibited while if it exceeds 5.0 wt% there is a strong tendency for difficulty in the medicine preparation, and furthermore there is a possibility of problems in safety such as stimulation of skin, etc.

[0015]

The aforementioned dimethylamine oxide (I), which is used together with the aforementioned glycyrrhetic acids and/or glycyrrhizinic acids for hair cosmetics of the present invention, can be prepared by ordinary prep methods of amine oxides. As an example, it can be prepared by the following process.

[0016]

[Structure 3]



- Key:
- 1 Catalyst
 - 2 Ethanol
 - 3 Dimethylamine oxide (I)

Dimethylamine oxide (I) prepared by the above method is admixed into hair cosmetics of the present invention generally via a known purification process such as recrystallization, etc.

[0017]

The mixing quantity of dimethylamine oxide (I) to the hair cosmetic of the present invention is 0.0001-20.0 wt% and preferably 0.05-5.0 wt%.

[0018]

If the mixing quantity is less than 0.0001 wt%, sufficient anti-inflammatory effect cannot be exhibited whereas if it exceeds 20.0 wt%, a strong tendency arises of difficulty in the medicine preparation and of stimulation of skin, etc.

[0019]

In this way, hair cosmetics exhibiting excellent hair loss-preventing effects, hair growth-promoting effects, antidandruff and anti-itching activities and excellent safety are provided in the combining of an aforementioned anti-inflammatory component with the aforementioned dimethylamine oxide (I).

[0020]

Furthermore, the hair cosmetics of the present invention may be mixed with medicinal value components, which are used in ordinary hair cosmetics, for exhibiting the general effect of the medicinal value components unless those impair the anticipated effect of the present invention.

[0021]

For instance, amino acids such as serine, methionine, arginine, etc., vitamins such as vitamin B₆, biotin, etc., pantothenic acid and its derivatives, and female sex hormones such as estradiol, etc. may be admixed into the hair cosmetics of the present invention.

[0022]

In addition, it is also possible to mix the hair cosmetics of the present invention with plant extracts, e.g., althea extract, coix seed extract, peppermint extract, Guinea pepper extract, aloe extract, Chinese matrimony vine extract, mugwort extract, rice extract, *Verbenacea* extract, common broom extract, gentian extract, *salvia miltiorrhiza* radix extract, dishcloth gourd extract, Chinese bellflower extract, pine tree extract, sopora root extract, *angelica* radix extract, safflower extract, Japanese barberry extract, betel palm tree extract, eucalyptus extract, *Prunella vulgaris* extract, achyranthes root extract, gill chamber extract, tea plant extract, licorice root extract, hop extract, chrysanthemum extract, senega extract, sesame extract, *Ligusticum officinale* extract, cashew extract, kudzu root extract, *rosa rugosa* flos extract, saffron extract, rosemary extract, rehmannia root extract, mallow extract, etc.

[0023]

Further, it is also possible to mix the hair cosmetics of the present invention with zinc or its derivatives, lactic acid or its alkyl esters, organic acids such as citric acid, etc., protease inhibitors, oils such as olive oil, squalane, liquid paraffin, isopropyl myristate, higher fatty acids, higher alcohols, etc., polyhydric alcohols such as glycerin, propylene alcohol, etc., surfactants, moisture-retaining agents, thickening agents, perfumes, antioxidants, ultraviolet ray absorbents, bactericides, refreshing agents, pigments, ethanol, water, etc. in a range where the additives do not impair the anticipated effect of the present invention.

[0024]

As the form of the present invention hair cosmetics, any form, which can be applied to the cuticle, such as liquid, lotion, ointment, etc. can be used without any problem, and if necessary suitable base components may be added to prepare hair cosmetics of a desired form. In addition, the hair cosmetics of the present invention can be used in various fields such as medicine, external medicine, or cosmetics, etc.

[0025]

The hair cosmetics of the present invention can be used for treatment and prevention of, e.g., hair loss, dandruff, itching, etc., and, for instance, the hair cosmetics can be widely used for

treatment and prevention of male baldness, male alopecia, female pyknic alopecia, and for the treatment of alopecia areata. Furthermore, the objectives shown here are illustrations, and the ailments, to which the hair cosmetics of the present invention can be applicable, are not limited to the aforementioned objectives only.

[0026]

The hair cosmetics of the present invention are administered by dosing for skin administration proportion such as direct coating or spraying, etc. (Furthermore, in the hair cosmetics of the present invention, the absorption of the ingredients through the skin is accelerated by the combination of the aforementioned indispensable ingredients). Then, the dose of the present invention hair cosmetics should be suitably decided according to variation in age and the degree of hair loss of individuals, etc. and the form of the preparations, but the dose for adults is generally 0.001-100 mg/day and preferably 0.1-10 mg/day per 1 kg of the body weight, and it is administered 2-4 times a day by dividing the dose.

[0027]

Application examples

Hereinafter, the present invention will be explained in detail by application examples, but the technical scope of the present invention is not limited to those application examples only. Before disclosing the application examples, the tests for examining the hair growth-promoting effect of the application examples will be explained.

[0028]

1. Test for hair growth-promoting effect

A trichogram test was conducted for examining the hair growth-promoting effect of hair cosmetics of the present invention. Each group for testing of comparative examples was composed of 5 males while each group for testing of application examples was composed of 4 males. The test application period was 4 months, and a sample was coated on the scalp twice a day at an amount of 2-4 mL each time. Fifty hairs were randomly pulled from the scalp of each male just before coating and after 4 months of coating, the roots of the pulled hairs were examined by microscope and then the proportion (%) of hair root resting period was calculated from the state of the hair roots. The increase or decrease in the proportion of hair root resting period before and after sample coating was judged by the following standard.

[0029]

Standard for judgment

Notable effect (+): The proportion of hair root resting period was decreased by at least 30%.

Weak effect (\pm): The proportion of hair root resting period was decreased by at least 10% but less than 30%.

No effect (-): The proportion of hair root resting period was decreased by less than 10%.

[0030]

2. Test for hair loss-preventing effect

The hair loss-preventing effect was judged by the number of hairs lost during hair washing. Each group for testing the hair loss-preventing effect was composed of 8 males in the case of comparative examples and 4 males in the case of application examples. The test period was 6 months, and the first two months were a period with no sample coating while the last four months were a period of sample coating. In the sample coating period, a sample was coated on the scalp twice a day in an amount of 2-4 mL each time. During the testing period, hair was washed every other day, and lost hair was recovered, and then the number of hairs collected in one week was counted.

[0031]

Number of hairs lost in each testing period was expressed as follows: data for the total number of hairs lost in 8 measurements during the two months before sample was coated and data for the total number of hairs lost in 8 measurements during the last two months in the sample coating period were collected, and the data were expressed as the number of hairs lost per one measurement in the form of an average value \pm one standard deviation. The effect was judged by the difference from the average value of each testing period as follows.

[0032]

Judgment standard

\rightarrow : Number of hairs lost was decreased by at least 70, and notable effect was confirmed.

$+$: Number of hairs lost was decreased by at least 40, and a decent effect was confirmed.

\pm : Number of hairs lost was decreased by at least 10, and only a little effect was confirmed.

$-$: Number of hairs lost was decreased by less than 10, and the coating was ineffective.

The hair loss-preventing effect was evaluated as effective when the number of persons with a grade of at least + in the effect judgment was more than 50%, otherwise it was evaluated as ineffective.

[0033]

3. Test for dandruff- and itching-preventing effect

The dandruff-preventing effect was evaluated by the change of protein quantity in dandruff and the degree of itching before and after sample application. Each group for testing the dandruff- and itching-preventing effect in comparative examples and application examples was composed of 4 persons. The sample coating period was 3 months, and during this period hair was washed once a day using a chemical-free shampoo and a sample was coated on the scalp twice a day at 2-4 mL each time.

[0034]

At the time before sample coating and after the three month sample coating was completed, dandruff was collected from the scalp before hair washing by a suction device, and the content of protein in the dandruff was measured. The dandruff-preventing effect of the sample was evaluated by examining the increase and/or decrease of the average dandruff amount before and after sample coating. In addition, the degree of itching in the scalp of each person was investigated, and it was expressed by the following.

[0035]

Dandruff-preventing effect

- +: Notable effect
- ±: Weak effect
- : Not effective

[0036]

Itching score

- 3: Strong itching
- 2: Itching
- 1: Little itching
- 0: No itching

[0037]

Application Examples 1-6, Comparative Examples 1-3

Lotions with ingredients shown in Table 1 (Application Examples 1-6, Comparative Examples 1-3) were prepared by methods described later, and the aforementioned tests were conducted on the lotions.

[0038]

Table 1

① 配合成分	② 試験			③ 実験					
	1	2	3	1	2	3	4	5	6
ジメチルアミノキシド(1)	1.0	—	—	1.0	1.0	2.0	2.0	3.0	3.0
グリチルリチン酸ジカリウム	—	0.05	—	0.001	—	0.5	—	—	1.0
β-グリチルレチニン酸	—	1.0	—	—	0.05	0.5	5.0	—	—
グリチルリチン酸	—	—	5.0	—	—	—	—	2.0	0.5
プロピレングリコール	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
硬化ヒマシ油エチレンオキシド(40モル)付加物	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
コハク酸	適量	適量	適量	適量	適量	適量	適量	適量	適量
香及び色素	適量	適量	適量	適量	適量	適量	適量	適量	適量
95%エタノール	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
無水	(6)	無水	無水	無水	無水	無水	無水	無水	無水

- Key:
- 1 Mixing components
 - 2 Comparative example
 - 3 Application example
 - 4 Dimethylamine oxide (I)
Dipotassium glycyrrhizinate
β-Glycyrrhetic acid
Glycyrrhizinic acid
Propylene glycol
Hardened castor oil-ethylene oxide (40 moles) adduct
Succinic acid
Fragrance and pigment
95% Ethanol
Purified water
 - 5 Proper quantity
 - 6 Balance

[0039]

Preparation method

Each treatment chemical, the propylene glycol, hardened castor oil-ethylene oxide (40 moles) adduct, succinic acid, and fragrance at given amounts were dissolved in 95% ethanol (ethanol phase). Then, pigment was dissolved in purified water, and this was added to the ethanol phase and stirred to obtain a transparent liquid-form lotion.

[0040]

The results of the aforementioned tests are shown in Table 2 and Table 3 (hair growth-promoting effect test), Table 4 and Table 5 (hair loss-preventing effect test), and Table 6 (dandruff- and itching-preventing effect test).

Table 2

① 7	被試者番号 ②	③ 毛根休止期率 (%)		⑥ 判定
		④ 非塗布部休止前	塗布終了後⑤	
⑦ 比較例 1	1	32.4	28.5	±
	2	21.8	22.6	-
	3	18.6	18.2	-
	4	25.7	16.5	+
	5	18.7	13.8	±
⑦ 比較例 2	1	40.2	42.4	-
	2	31.4	30.4	-
	3	18.5	16.0	±
	4	24.5	26.7	-
	5	26.8	30.9	-
⑦ 比較例 3	1	17.3	17.9	-
	2	19.8	15.8	±
	3	36.7	37.8	-
	4	28.2	27.6	-
	5	20.4	22.1	-

- Key:
- 1 Group
 - 2 Tested person No.
 - 3 Hair root resting period proportion (%)
 - 4 Just before non-coating period
 - 5 After completing the coating
 - 6 Judgement
 - 7 Comparative Example

[0041]

Table 3

群 ①	被試者番号 ②	毛根休止期率 (%)		判定 ⑥
		塗布前 ④	塗布後 ⑤	
実施例 1 ⑦	1	30.4	29.5	±
	2	29.6	18.6	+
	3	19.8	11.2	+
	4	25.1	15.5	+
実施例 2 ⑦	1	41.2	32.4	±
	2	21.4	19.8	-
	3	28.5	16.0	+
	4	24.5	16.7	+
実施例 3 ⑦	1	17.3	11.4	+
	2	19.1	12.8	+
	3	36.7	22.2	+
	4	28.8	17.5	+
実施例 4 ⑦	1	25.8	15.0	+
	2	42.5	26.8	+
	3	19.9	11.7	+
	4	31.5	22.0	±
実施例 5 ⑦	1	18.4	12.1	+
	2	35.8	28.2	±
	3	40.7	26.6	+
	4	27.2	18.2	+
実施例 6 ⑦	1	38.7	27.1	±
	2	26.4	16.6	+
	3	19.1	11.3	+
	4	30.5	17.6	+

- Key:
- 1 Group
 - 2 Tested person No.
 - 3 Hair root resting period proportion (%)
 - 4 Just before non-coating period
 - 5 After completing the coating
 - 6 Judgement
 - 7 Application Example

[0042]

Table 4

群 ①	被験者番号 ②	③ 落毛本数		判定 ⑥
		④ 錠達布期間	錠布期間 ⑤	
比較例1 ⑦	1	246±34	258±29	-
	2	319±41	263±37	+
	3	442±48	408±40	±
	4	279±29	290±27	-
	5	368±31	322±33	+
	6	421±52	419±60	-
	7	322±43	216±18	++
	8	428±50	406±32	±
比較例2 ⑦	1	317±36	311±40	-
	2	299±25	312±28	-
	3	486±56	468±48	-
	4	226±31	217±27	±
	5	385±35	395±41	-
	6	242±23	276±31	-
	7	198±19	221±22	-
	8	331±47	352±36	-
比較例3 ⑦	1	216±28	212±20	-
	2	435±39	398±45	±
	3	340±51	386±42	-
	4	227±28	260±81	-
	5	526±58	597±51	-
	6	194±26	176±16	±
	7	319±41	321±36	-
	8	288±47	307±30	-

- Key:
- 1 Group
 - 2 Tested person No.
 - 3 Number of lost hairs
 - 4 Non-coating period
 - 5 Coating period
 - 6 Judgement
 - 7 Comparative Example

[0043]

Table 5

群 ①	被取者番号 ②	(3) 銀毛本数		判定 ⑥
		(4) 無塗布期間	(5) 涂布期間	
実施例1 ⑦	1	346±38	258±29	++
	2	216±31	163±23	+
	3	432±41	408±38	±
	4	292±29	205±19	++
実施例2 ⑦	1	468±47	402±43	+
	2	421±52	319±38	++
	3	312±43	216±38	++
	4	228±34	206±16	±
実施例3 ⑦	1	387±38	288±43	+
	2	390±35	362±38	±
	3	482±52	400±48	++
	4	285±34	252±37	±
実施例4 ⑦	1	185±15	162±24	±
	2	442±53	366±41	++
	3	898±49	341±32	+
	4	281±40	232±38	+
実施例5 ⑦	1	518±64	412±48	++
	2	485±49	388±45	+
	3	240±21	186±28	+
	4	297±30	210±30	++
実施例6 ⑦	1	299±41	237±34	+
	2	594±71	476±56	++
	3	411±46	385±33	±
	4	388±41	301±39	++

- Key:
- 1 Group
 - 2 Tested person No.
 - 3 Number of lost hairs
 - 4 Non-coating period
 - 5 Coating period
 - 6 Judgement
 - 7 Application Example

[0044]

Table 6

現 ①	② 平均ふけ量 (mg)		ふけ防止 ⑤ 防止 ±	かゆみ ⑥ (スコア平均)
	無塗布初期直前 ③	塗布終了後 ④		
比較例1 ⑦	16.33	16.36	-	1.5
	2	16.16	±	1.3
	3	15.48	±	1.5
実施例1 ⑧	17.21	9.12	+	0.5
	2	19.38	+	0.5
	3	18.54	+	0.25
	4	17.92	+	0.5
	5	15.41	+	0.25
	6	16.96	+	0.5

- Key:
- 1 Group
 - 2 Average dandruff quantity
 - 3 Just before non-coating period
 - 4 After completion of coating
 - 5 Dandruff-preventing effect
 - 6 Itching (average score)
 - 7 Comparative Example
 - 8 Application Example

[0045]

According to the results, hair growth-promoting effects, hair loss-preventing effects, and dandruff-and itching-preventing effects were notably confirmed in lotions of application examples, which were prepared by mixing the aforementioned glycyrrhetic acids or glycyrrhizinic acids with dimethylamine oxide (I), and the effects in lotions of comparative examples prepared by using only anti-inflammatories or dimethylamine oxide (I) even when a decent amount of anti-inflammatories or dimethylamine oxide (I) were mixed were considerably inferior to the results of application examples.

[0046]

Namely, it was elucidated that hair growth-promoting effects, hair loss-preventing effects and dandruff- and itching-preventing effects were notably confirmed in the present invention hair cosmetics prepared by combining the aforementioned glycyrrhetic acids or glycyrrhizinic acids

with dimethylamine oxide (I). This indicates that desired effects can be attained in the present invention hair cosmetics even when small amounts of effective components are used and unpleasant irritation and rubefaction of the coated area and its vicinity, which are caused by mixing a large amount of glycyrrhetic acid or glycyrrhizinic acid, can be prevented.

[0047]

Hereinafter, prescription examples of other hair cosmetics of the present invention are shown.

Application Example 7 Lotion

(Mixing components)	Mixing quantity (wt%)
95% Ethanol	50.0
Dimethylamine oxide (I)	0.5
Monoammonium glycyrrhizinate	0.2
Glycerin	2.0
Hardened castor oil-ethylene oxide (40 moles) adduct	0.8
Malic acid	proper quantity
Fragrance and pigment	proper quantity
Purified water	balance

[0048]

Preparation method

A transparent liquid-form lotion was obtained by dissolving dimethylamine oxide (I), hardened castor oil-ethylene oxide (40 moles) adduct, and fragrance in 95% ethanol (ethanol phase) while dissolving the other components in purified water, adding the latter to the ethanol phase, and stirring. When the aforementioned tests were conducted on this hair cosmetic of the present invention, the hair growth-promoting effect, hair loss-preventing effect, and dandruff-and itching-preventing effect were notably confirmed.

[0049]

Application Example 8 Lotion

(Mixing components)	Mixing quantity (wt%)
95% Ethanol	90.0
Dimethylamine oxide (I)	3.0
β -glycyrrhetic acid	1.0
1,3-Butylene glycol	5.0
Hardened castor oil-ethylene oxide (50 moles) adduct	1.0
Sodium lauryl sulfate	0.5
Lactic acid	proper quantity
Sodium lactate	proper quantity
Fragrance and pigment	proper quantity
Purified water	balance

[0050]

Preparation method

A transparent liquid-form lotion was obtained by dissolving hardened castor oil-ethylene oxide (50 moles) adduct and fragrance in 95% ethanol, adding purified water, further adding other components, and stirring to dissolve them. When the aforementioned tests were conducted on this hair cosmetic of the present invention, the hair growth-promoting effect, hair loss-preventing effect, and dandruff- and itching-preventing effect were notably confirmed.

[0051]

Application Example 9 Milky lotion type hair cosmetic

(Mixing components)	Mixing quantity (wt%)
(1) Cetanol	1.6
(2) Stearic acid	1.0
(3) Palmitic acid	0.4
(4) Liquid lanolin	1.0
(5) Squalane	2.5
(6) Glyceryl monostearate	1.5
(7) POE sorbitan monostearate	0.5
(8) Dimethylamine oxide (I)	1.0
(9) Stearyl glycyrrhetinate	0.1
(10) Dipropylene glycol	5.0
(11) Polyethylene glycol 400	1.0

(12) Triethanolamine	1.0
(13) Purified water	balance

[0052]

Preparation method

The components of (1)-(9) were mixed to obtain a mixture 1, and separately the components (10)-(13) were mixed to obtain a mixture 2. Those mixtures were independently heated to 70°C, mixed, and emulsified in an emulsifier, and cooled by heat exchange to obtain a milky lotion-type hair cosmetic. When the aforementioned tests were conducted on this hair cosmetic of the present invention, the hair growth-promoting effect, hair loss-preventing effect, and dandruff-and itching-preventing effect were notably confirmed.

[0053]

Effect of the invention

Hair cosmetics exhibiting excellent hair loss-preventing effects, hair growth-promoting effects, scalp-itching and dandruff-preventing effects, and also excellent safety are provided by the present invention.

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- BLACK BORDERS**
- IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- FADED TEXT OR DRAWING**
- BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- SKEWED/SLANTED IMAGES**
- COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- GRAY SCALE DOCUMENTS**
- LINES OR MARKS ON ORIGINAL DOCUMENT**
- REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.